Remarks

Thorough examination and careful review of the application by the Examiner is noted and appreciated.

The claims have been amended to clarify Applicants invention and new claims added.

Applicants urge Examiner to allow entry of the amendments to place the claims in better form for appeal.

Support for the amended claims is found in the original claims and/or Specification. No new matter has been entered. For example support for "first critical dimension" and "second critical dimension" is found in the original claims and in the Specification at page 9, paragraph 0018:

"FIG. 2 shows a hard mask layer 202 according to an embodiment of the invention. The hard mask layer 202 includes a lower layer 204 and an upper layer 206. Each of the lower layer 204 and the upper layer 206 may be a dielectric film. The lower layer 204 is **hard mask trimmed to satisfy the critical dimension (CD)** specification of an underlying polysilicon or other type of silicon layer, not shown in FIG. 2."

For example, support for the terms "first and second critical dimension" as well as "isotropic etching" is found in the Specification at page 11, paragraph 0020:

"Next, hard mask etching is accomplished through the lower layer and the upper layer (304), and the photoresist layer is removed (306). At least the lower layer is hard mask trimmed (308), to satisfy the CD specification of the polysilicon layer. The upper layer during hard mask trimming at least substantially prevents the lower layer from losing its thickness. The hard mask trimming may be accomplished by **wet etching or isotropic dry etching**, with high selectivity to the upper layer."

and at paragraph 0022 on page 18, as well as Figures 5A-5G:

"The hard mask trimming can in one embodiment cause removal of substantially fifty nanometers (nm) of width of the lower layer 406, resulting in the lower layer 406 having a width of substantially five-hundred nm."

Claim Rejections under 35 USC 102(e)

Claims 1, 3, and 4-7 stand rejected under 35 USC 102(e) as being anticipated by Aminpur (U.S. 6,482,726).

Aminpur discloses a method for forming a hardmask having an upper and lower hardmask where the lower hardmask is etched to have a second dimension less than the first dimension (see Abstract). In particular, Aminpur discloses a process whereby a patterned resist is first formed over the upper hardmask layer an is then trimmed to a smaller critical first dimension (smaller width) as shown in Figure 5 and as discussed at col 6, lines 1-21). The upper hardmask layer is then anisotropically etched according to the resist critical dimension through a thickness of the upper hardmask layer **without etching the lower hardmask layer**

(see col 6, lines 22-29, and Figure 6). Aminpur then teaches an isotropic wet etching step **selective to the underlying conductive layer** to etch the **unetched lower** hardmask layer to a **second critical dimension** less than the first critical dimension (smaller width than the upper hardmask layer) (see Figure 7, and col 6, lines 44-55).

Aminpur does not disclose Applicants claimed invention including:

"a primary layer for forming a feature having a first critical dimension;

a lower layer over the primary layer, the lower layer and the upper layer comprising a hardmask, the lower layer further having the first critical dimension etched in an isotropic etching step from a second critical dimension larger than the first critical dimension;

an upper layer over the lower layer, the upper layer having the second critical dimension formed from a first etching step and having a high etching selectivity in the isotropic etching step as compared to the lower layer,; and,

an etching-stop layer between the lower layer and the primary layer on which the first etching step stops."

Thus, in the device and method of Applicants, an upper and lower hardmask (layer) are **first etched through a thickness to a second critical dimension stopping on an etch stop layer. The lower layer is then isotropically etched from a first**

critical dimension to a first critical dimension less than the second.

In Applicants method, the lower layer is etched twice, once to form a second critical dimension, and then to form a first critical dimension less than the first. In addition, an etch stop layer is present to stop the first etching step.

In contrast, in the method of Aminpur, there is no etch stop layer that is disclosed or would be necessary or desirable in the method of Aminpur. In fact, Aminpur discloses that the isotropic wet etch process is carried out to etch a previously unetched lower layer where the wet etching process is selective to the underlying layer (thereby not requiring an etch stop layer).

Thus, the method and device of Aminpur is formed by a structurally different principal of operation, thereby resulting in a device having fundamental structural difference, both by the presence of an etch stop layer, and differences resulting from the different etching steps (i.e., one etching step for the lower layer of Aminpur vs two etching steps for the lower layer of Applicants).

With respect to claims 17, 19, and 20, Applicants reiterate the above arguments.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Since a *prima facie* case of anticipation with respect to amended independent claims 1 and 17, has not been made out, neither has a *prima facie* case been made out with respect to the respective dependent claims.

The claims have been amended to clarify Applicants claimed invention and new claims added. Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited. Should any fee be due as a result of this response, the Examiner is hereby authorized to charge Deposit Account No. 50-0484 any such fee.

In the event that the present invention as claimed is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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